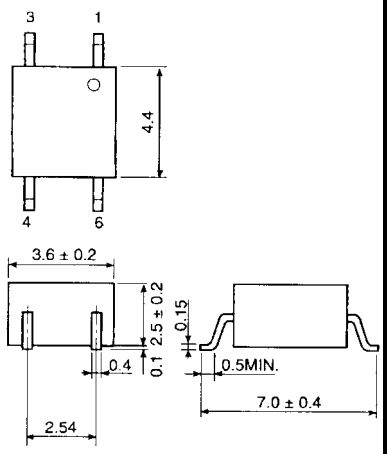
Preliminary

TOSHIBA Photocoupler GaAs IRED&Photo-triac

TLP260J

Triac Drive
Programmable Controllers
AC-Output Module
Solid State Relay

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	—

Weight: 0.09 g

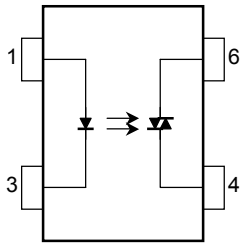
The TOSHIBA TLP260J is a photocoupler housed in a mini-flat package and consists of a phototriac which is optically coupled to a gallium arsenide infrared-emitting diode.

This type of photocoupler is suitable for use in hybrid ICs as it is thinner and smaller than a 6-pin DIP photocoupler.

TLP260J: 4-pin mini-flat package (MFSOP6)

- Peak OFF-state voltage: 600 V (min)
- Trigger LED current: 10 mA (max)
- ON-state current: 70 mA (max)
- Isolation voltage: 3000 Vrms (min)

Pin Configuration (top view)



1: ANODE
3: CATHODE
4: TERMINAL1
6: TERMINAL2

Maximum Ratings (Ta = 25°C)

Characteristics			Symbol	Rating	Unit
LED	Forward current		I_F	50	mA
	Forward current derating (Ta ≧ 53°C)		ΔI_F/°C	−0.7	mA/°C
	Peak forward current (100 μs pulse, 100 pps)		I_{FP}	1	A
	Reverse voltage		V_R	5	V
	Junction temperature		T_j	125	°C
Detector	OFF-state output terminal voltage		V_{DRM}	600	V
	ON-state RMS current	Ta = 25°C	$I_{T\ (RMS)}$	70	mA
		Ta = 70°C		40	
	ON-state current derating (Ta ≧ 25°C)		ΔI_T/°C	−0.67	mA/°C
	Peak ON-state current (100 μs pulse, 120 pps)		I_{TP}	2	A
	Peak nonrepetitive surge current (P_W = 10 ms, DC = 10%)		I_{TSM}	1.2	A
	Junction temperature		T_j	100	°C
Storage temperature range			T_{stg}	−55~125	°C
Operating temperature range			T_{opr}	−40~100	°C
Lead soldering temperature (10 s)			T_{sol}	260	°C
Isolation voltage (AC, 1 min, RH ≦ 60%) (Note1)			BV_S	3000	Vrms

Note 1: Pins 1 and 3 shorted together, and pins 4 and 6 shorted together.

Recommended Operating Conditions

Characteristics	Symbol	Min	Typ.	Max	Unit
Supply voltage	V_{AC}	—	—	240	V_{ac}
Forward current	I_F	15	20	25	mA
Peak ON-state current	I_{TP}	—	—	1	A
Operating temperature	T_{opr}	−25	—	85	°C

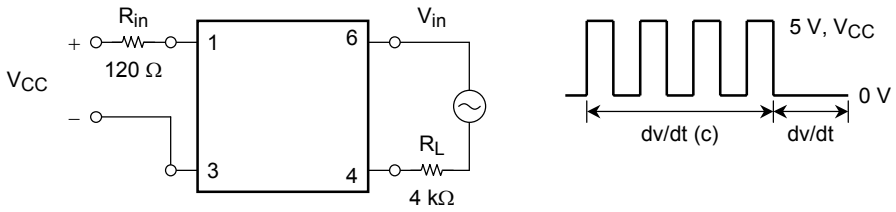
Individual Electrical Characteristics (Ta = 25°C)

Characteristics		Symbol	Test Condition	Min	Typ.	Max	Unit
LED	Forward voltage	V_F	I_F = 10 mA	1.0	1.15	1.3	V
	Reverse current	I_R	V_R = 5 V	—	—	10	μA
	Capacitance	C_T	V = 0, f = 1 MHz	—	30	—	pF
Detector	Peak OFF-state current	I_{DRM}	V_{DRM} = 600 V	—	10	1000	nA
	Peak ON-state voltage	V_{TM}	I_{TM} = 70 mA	—	1.7	2.8	V
	Holding current	I_H	—	—	1.0	—	mA
	Critical rate of rise of OFF-state voltage	dv/dt	V_{in} = 240 V, Ta = 85°C (Note2)	—	500	—	V/μs
	Critical rate of rise of commutating voltage	dv/dt (c)	V_{in} = 60 Vrms, I_T = 15 mA (Note2)	—	0.2	—	V/μs

Coupled Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Trigger LED current	I_{FT}	V_T = 6 V	—	—	10	mA
Capacitance input to output	C_S	V_S = 0, f = 1 MHz	—	0.8	—	pF
Isolation resistance	R_S	V_S = 500 V, RH ≦ 60%	5×10^{10}	10^{14}	—	Ω
Isolation voltage	BV_S	AC, 1 min.	3000	—	—	Vrms
		AC, 1 s, in oil	—	5000	—	
		DC, 1 min., in oil	—	5000	—	Vdc
Turn-on time	t_{ON}	V_D = 6 → 4 V, R_L = 100 Ω, I_F = Rated I_{FT} × 1.5	—	30	100	μs

Note 2: dv/dt test circuit



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